



A critica and in-depth anEcotoxicity testing of nanoparticles - The quest for disclosing the nano-effect

Baun, Anders; Skjolding, Lars Michael; Sørensen, Sara Nørgaard; Hjorth, Rune; Hansen, Steffen Foss; Hartmann, Nanna B.

Published in:

Abstracts - 8th international symposium on nanotechnology, occupational and environmental health

Publication date:

2017

Document Version

Publisher's PDF, also known as Version of record

[Link back to DTU Orbit](#)

Citation (APA):

Baun, A., Skjolding, L. M., Sørensen, S. N., Hjorth, R., Hansen, S. F., & Hartmann, N. B. (2017). A critica and in-depth anEcotoxicity testing of nanoparticles - The quest for disclosing the nano-effect. In *Abstracts - 8th international symposium on nanotechnology, occupational and environmental health* (pp. 48-48). National research centre for the working environment.

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Ecotoxicity testing of nanoparticles – The quest for disclosing the nano-effect

Anders Baun, Lars M Skjolding, Sara N Sørensen, Rune Hjorth, Steffen F Hansen, Nanna B Hartmann
Technical University of Denmark, Denmark; abau@env.dtu.dk

While the literature on ecotoxicological effects and uptake of ENPs is rapidly expanding, the applicability of reported data of ENPs for hazard assessment purposes is questionable. A major knowledge gap is whether nanoparticle effects occur when test organisms are exposed to ENPs in aquatic test systems. This knowledge gap is not straightforward to fill, due to the high variability in ENP types, and the different behavior of ENPs compared to "ordinary" (dissolved) chemicals in the ecotoxicity test systems. The risk of generating false negative, as well as false positive, results in the currently used tests is high, but in most cases difficult to assess. Based on a literature review, this presentation outlines some of the pitfalls in aquatic toxicity testing of ENPs which may lead to misinterpretation of test results. In this paper, we are describing the effect of nanoparticles towards aquatic organisms. The presentation revolves around three response types that are not directly related to the nanoparticle per se, but which can mask that nanoparticle effects can be quantified. These response types are

1. Physical effects caused by attachment of nanoparticles,
2. Dissolution of nanoparticles leading to toxic effects corresponding to that of ions, and
3. Uptake, internalization and translocation of nanoparticles.

We further propose that already known toxic modes of action should be carefully characterized and quantified before claiming that novel nanoparticle effects have been discovered.